

CLAIMS:

1. A method of main reformer startup, comprising:
 introducing a first supply of fuel and a first supply of air into a
 micro-reformer;
 increasing said first supply of fuel to produce a heated reformat
 5 in said micro-reformer;
 directing said heated reformat through a main reformer to heat
 said main reformer;
 burning at least a portion of said heated reformat in said main
 reformer; and
 10 introducing a second supply of fuel and a second supply of air to
 said main reformer to produce a main supply of reformat.
2. The method of Claim 1, further comprising electrically
 pre-heating said micro-reformer.
3. The method of Claim 2, wherein said micro-reformer has
 an inlet air temperature at about 140°C or greater and a catalyst exit temperature
 of about 300°C or greater.
4. The method of Claim 1, wherein said micro-reformer has
 a catalyst volume of about 50% or less of a catalyst volume of said main
 reformer.
5. The method of Claim 1, wherein said main reformer
 consists essentially of a catalyst and ceramic components.
6. The method of Claim 1, wherein said first supply of fuel
 has an equivalence ratio of about 0.4 to about 0.7.
7. The method of Claim 1, wherein said increasing said first
 supply of fuel is to an equivalence ratio of about 2.7 to about 2.9.

8. The method of Claim 7, wherein said micro-reformer has a catalyst exit temperature of about 500°C or greater.

9. The method of Claim 1, wherein said second supply of fuel has an equivalence ratio of about 1.8 to about 2.2.

10. The method of Claim 9, wherein said main reformer has catalyst exit temperature at about 500°C or greater.

11. The method of Claim 1, further comprising electrically preheating said micro-reformer.

12. The method of Claim 1, wherein said micro-reformer has a catalyst volume equal to about 50% or less of a catalyst volume of said main reformer.

13. The method of Claim 12, wherein said micro-reformer has a catalyst volume equal to about 35% or less of a catalyst volume of said main reformer.

14. The method of Claim 12, wherein said micro-reformer has a catalyst volume equal to about 25% to about 10% of a catalyst volume of said main reformer.

15. A method for maintaining a vehicle device in standby condition, comprising:

introducing a supply of fuel and a supply of air into a micro-reformer;

5 increasing said supply of fuel to produce a heated reformate in said micro-reformer;

passing at least a portion of said heated reformate through said vehicle device; and

maintaining said vehicle device at a standby temperature.

16. The method of Claim 15, further comprising electrically pre-heating said micro-reformer.

17. The method of Claim 16, wherein said micro-reformer has an inlet air temperature at about 140°C or greater and a catalyst exit temperature of about 300°C or greater.

18. The method of Claim 15, further comprising burning at least a portion of said heated reformat in said vehicle device.

19. The method of Claim 15, wherein said vehicle device is a device selected from the group consisting of a reformer, a waste energy recovery burner device, a catalytic after treatment system, a burner, a fuel fired heater device, and combinations comprising at least one of the foregoing devices.

20. The system of Claim 15, wherein said standby temperature is about 200°C to about 400°C.

21. The system of Claim 20, wherein said standby temperature is about 250°C to about 300°C.

22. The method of Claim 15, wherein said first supply of fuel has an equivalence ratio of about 0.4 to about 0.7.

23. The method of Claim 15, wherein said increasing said first supply of fuel is to an equivalence ratio of about 2.7 to about 2.9.

24. The method of Claim 23, wherein said micro-reformer has a catalyst exit temperature of about 500°C or greater.